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Agricultural Engineering.

Agricultural engineering research in the United States. By S. H. McCrory. Proceedings of the World's Grain Exhibition and Conference. v. 1. 1933. p. 410-414. Scope of work: 1. Mechanical farm equipment; 2. Farm structures; 3. Land development. Future research work.

Function of agricultural engineering research at Land Grant colleges. By. M. L. Nichols. Agricultural Engineering. v. 15, no. 7. July, 1934. p. 226-228.

New frontiers for agricultural engineers. By Arthur Huntington. Agricultural Engineering. v. 15, no. 7. July, 1934. p. 219-222. This civilization is not completed; trouble is that our ability to acquire knowledge has outrun our ability to use it. We have not yet learned how to be intelligent.

Responsibility of agricultural engineers in agricultural reorganization. By W. R. Woolrich. Agricultural Engineering. v. 15, no. 8. August, 1934. p. 273-275, 279. Readjustment of agriculture will include such basic problems as: 1. Its diffusion with industry. 2. Control of soil erosion. 3. Promotion of investigation, research, and industry in relation to land use and conservation. 4. Restoration and maintenance of plant food. 5. Exploration of economic and social objectives of rural life. Some phases that will permit greatly increased activity are: 1. Standardizing function of machines adapted to farm life so that consumers whom you serve will have some better measuring stick of goods they purchase. 2. Development of new machines that will fit into interspersed agriculture and industry movement. 3. Insistent simplification of home equipment now purchased under city codes that will adapt itself to great mass of farm users without undue burden of initial investment. 4. Program of definite procedure in training rural youth in carpentering, masonry, house wiring, and plumbing to restore more of self-sufficiency to farm life practice.

Second International Agricultural Engineering Congress, September, 1935. Monthly Bulletin of Agricultural Science and Practice. v. 25, no. 6. June, 1934. p. 275. 1st section: Soil Science. Agricultural hydraulics. Farm land improvement. 2nd section: Farm buildings. 3rd section: Farm machinery. Agricultural uses of electricity. 4th section: Scientific organization of farm work.

Agriculture.

Farm buying power up.- Sets 3-year record. Implement and Tractor Trade Journal. v. 49, no. 18. Sept. 8, 1934. p. 8-9. Billion-dollar distribution of various AAA funds during current biennium together with commodity advances improves farmers' financial position despite his weather reverses.

Fifty-third and fifty-fourth annual reports of the New Jersey state agricultural experiment station and the forty-fifth and forty-sixth annual reports of the New Jersey Agricultural College Experiment Station for the 2-year period ending June 30, 1933. 1934. 163p. Agricultural Engineering, p. 13-14, 101.

Indicated crop production based on August first conditions. Farm Implement News. v. 55, no. 17. August 16, 1934. p. 17. With all total yields below average, official figures reveal unusually wide variation in State percentages of normal production of principal crops.

Survey of agricultural situation. By Horace Bowker. American Fertilizer. v. 80, no. 11. June 2, 1934. p. 8-9, 26. Crop reduction program. Increase in farm income. Closer balance of prices. Tolerate view of N.R.A. needed. Inflationary plans.

Air Conditioning.

Data used in application of heating and air conditioning equipment. Power Plant Engineering. v. 38, no. 9. September, 1934. p.412-415, 428-430. Heat emission of various types of radiators. Heat requirements. Pipe sizes. Indirect systems. Unit heaters. Air conditioning. Control systems. Hot water heating systems. Friction head calculations.

Measurement of humidity. By H. H. Edwards. Refrigeration, Cold Storage and Air Conditioning. v. 5, no. 3. June 30, 1934. p.21, 23-24.

Architecture.

Origin of present-day architecture. By Don Graf. American Home. v. 11, no. 6. May, 1934. p. 338-339. IV. Characteristics of the colonial style.

Belts.

Connecting motor and load. By Robert Drake. Power. v. 78, no. 9. September, 1934. p. 490-492. Consideration is given to direct-connection; open flat belts with pivoted-base motors; flat belts with idler pulleys; multiple V-belts; chains; gear units and protection of motor and driven machine.

Present day conditions emphasize value of efficient belt transmission. By J. F. Engler. Southern Power Journal. v. 52, no. 9. September, 1934. p. 45-46.

Building Construction.

Bathroom planning. American Architect. v. 144, no. 2621. January, 1934. p. 69-88.

Data on structural use of plywood from two new test series. By George W. Trayer. Engineering News-Record. v. 113, no. 6. August 9, 1934. p. 172-174. 1. Plywood as structural covering for frame walls and wall units. 2. Stressed plywood coverings for floor panels tested.

Four comparable buildings reveal trend of costs since 1928. By F.J. Knox. Engineering News-Record. v. 113, no. 10. September 6, 1934. p. 295-298. Wide variations in costs and specifications found in analyzing similar university classroom units during last seven years. Cubic-foot costs on present construction are 40 per cent lower than those of 1928 despite more elaborate finishing.

Official information on U.S. insured loans. By Bernard L. Johnson. American Builder and Building Age. v. 56, no. 9. September, 1934. p. 26-29.

Relation of income to housing costs. By W.G. Kaiser. Agricultural Engineering. v. 15, no. 7. July, 1934. p. 249-250.

Walkways, stairways, climbways. By Ernest Irving Freese. American Architect. v. 144, no. 2622. March, 1934. p. 45-48.

Concrete.

Concrete designers' manual. By George A. Hool and Charles S. Whitney. 2d edition. New York, McGraw-Hill Book Company, Inc., 1926. 329p. Tables and diagrams for the design of reinforced concrete structures.

Cotton and Cotton Ginning.

Controlled production of cotton. By W. W. Long. 1934. 8p. Clemson Agricultural College. Extension Service Circular no. 134.

Cotton production in the United States crop of 1933. Washington, 1934. 38p. U.S. Bureau of the Census.

Economic consequences of cotton acreage reduction. By Walter Parker. Cotton Ginners' Journal. v. 5, no. 10. July, 1934. p. 13, 15. To continue policy indefinitely would be to give active impetus to loss of world markets for cotton, at time when foreign cotton producers are being told to double and quadruple their acreage planted to cotton, because United States export market for cotton is handicapped.

Cultivation.

Reasons for cultivation. Idaho Farmer. v. 52, no. 13. June 28, 1934. p. 9. Several factors affect orchard tillage and pruning.

Why risk next year's crops? Implement and Tractor Trade Journal. v. 49, no. 17. August 25, 1934. p. 10-11. More thorough ground preparation is needed in the winter wheat belt as preliminary to better seeding. Price outlook justifies more intensive effort now.

Dams.

Brief instructions for the design and construction of small dams for emergency conservation work in North Dakota. By L. C. Tschudy and John G. Sutton. 1934. 23p. mimeographed. U. S. Department of Agriculture. Bureau of Agricultural Engineering.

Earth fill dam built by CCC in Kansas. By Murray A. Wilson. Public Works. v. 65, no. 4. April, 1934. p. 33-34

Drainage.

Ditch cleaning experiments in Delaware. By W. D. Ellison. 1934. 6p. Mimeographed. U. S. Department of Agriculture, Bureau of Agricultural Engineering.

Engineering for land drainage in the Balkans. By Fred W. Knipe. Agricultural Engineering. v. 15, no. 7. July, 1934. p. 223-225.

Report of anti-mosquito work in Maryland. 1934. 31p. University of Maryland. Extension Service. Bulletin no. 73.

Spacing and depth of tile drains. By J. H. Neal. Agricultural Engineering. v. 15, no. 7. July, 1934. p. 229-232. Continued from June issue.

Electric Wiring.

Wiring farm buildings. Hoard's Dairyman. v. 79, no. 12. June 25, 1934. p. 293. Practical suggestions that will effectively light up farm.

Electricity in the Home.

Electrical home. Popular Mechanics. v. 61, no. 5. May, 1934. p.698-700, 124 A.

Electricity on the Farm.

Electric light on poultry farm. Rural Electrification and Electro-Farming. v. 10, no. 111. August, 1934. p. 83, Electric lighting in poultry houses results in increased output and greater profits. Extension of day tends to greater fertility.

Eleventh annual report to the Committee on the Relation of Electricity to Agriculture. July 27, 1934. Chicago, Illinois, 1934. 18p.

Force-molting of hens and all-night lighting as factors in egg production. By D. F. King and G. A. Trollope. 1934. 7p. Alabama Agricultural Experiment Station. Circular no. 64.

Thermostats and their agricultural application. By George R. Townsend. Agricultural Engineering. v. 15, no. 7. July, 1934. p. 246-248.

Engineering.

Engineering analysis of five-year plans for Russian rehabilitation: II Relatively small construction volume achieved. By Zara Witkin. Engineering News-Record. v. 113, no. 7. August 16, 1934. p. 207-211. In terms of planned construction total first five-year plan of construction amounted to about two-thirds of actual construction in America as averaged over 10year period.

Engineering. (Cont'd)

Engineering analysis of five-year plans for Russian rehabilitation: III.- Rationalization program for future construction. By Zara Witkin. Engineering News-Record. v. 113, no. 9. August 30, 1934. p. 272-275. Research, standardization and rationalization undertaken to improve future construction. Fulfillment of first five-year plan. Analysis shows general failure. Magnitude of second five-year plan.

Engines.

Engine from washer runs farm machines. Popular Mechanics. v. 61, no. 5. May, 1934. p. 737. Operation of many farm machines is made possible by detaching power plant from one type of washing machine and adapting it to other work. Power plant consists of engine run by gasoline.

Montana reports on the Diesel. Implement and Tractor Trade Journal. v. 49, no. 17. August 25, 1934. p. 12. Results of Montana experiment are summarized as follows: 1. While Diesel fuel is not yet available at local oil stations, it can be obtained at nearly every refinery in Montana at comparatively low price. 2. Every precaution should be taken to have fuel used within specifications recommended by Diesel manufacturers. 3. Servicing of Diesel tractors is somewhat different from that of gasoline tractor but it offers no particular difficulties as instructions of Diesel manufacturers are easily understood and followed. 4. Fuel costs are decidedly lower for Diesel tractor. 5. Higher initial price of Diesel partly offsets savings in fuel through higher depreciation and interest charges if same number of working hours is assumed for gasoline and Diesel tractors.

Erosion Control.

Control of gullies. By H. B. Roe. Agricultural Engineering. v. 15, no. 7. July, 1934. p. 232. When gully has once started in field, prompt steps should be taken to stop it, before it has attained size beyond that of ordinary dead furrow. If taken in time such wash may readily be eliminated by filling ditch with old straw well tramped down, plowing dirt from sides onto straw, cross-disking run to eliminate cultivation channels down slope, and, finally, seeding strip rod or two wide over run for its entire length with some quick germinating and vigorous growing grass. Where such wash is persistent on steep slope, sod barriers across it well tramped into place in old burlap sacks at frequent intervals down its entire length are effective deterrent of deeper washing. By time sacks are rotted away sod will have taken firm root in soil. Where gully has already attained depth much greater than deep plow furrow three things are necessary to be done to control and eliminate it. Increase in length of gully (commonly called "head growth") caused by overfall of water and by freezing and thawing, must be stopped. Soil-saving dam must be built at mouth of gully in such way as to let water by but retain its silt burden with which to fill gully. Caving at sides and deeper scouring of gully floor must be checked.

Control of soil drifting. By A. E. Palmer. Proceedings of the World's Grain Exhibition and Conference. v. 1. 1933. p. 442-449. Emergency Measures. Preventative Measures.

Erosion Control. (Cont'd)

Farming the subsoil. By Berry H. Akers. Farmer and Farm, Stock and Home. v. 52, no. 15. July 21, 1934. p. 3, 18. Rapidly our nation is becoming one of sub-soil farmers. Already 35,000,000 acres of once fertile farm land have been abandoned because of soil erosion. Problem now is to conserve and rebuild fertility of what is left, and protect rich lowlands from being covered with poor subsoil, sand and rock that washed down from above. Two types of erosion control which can be easily adopted by farmers whose land is not too steep are strip cropping and terracing, both involving contour cultivation.

Gully blasting - a method of erosion control. By L. C. LeBron. Explosives Engineer. v. 12, no. 7. July, 1934. p. 196-197. Dynamite correctly selected for purpose and properly used furnishes low-cost means of sloping banks of erosion gullies.

Nationwide view of essential soil erosion control measures. By B. P. Fleming. Agricultural Engineering. v. 15, no. 8. August, 1934. p. 267-272. Attempt to give glimpse of program and hint as to problems of Soil Erosion Service, a new Bureau of U.S. Department of the Interior. Primarily it is vast program of education based upon demonstration of self-help.

Physico-chemical properties of soils affecting soil erosion. By J. Fulton Lutz. 1934. 45p. Missouri. Agricultural Experiment Station. Research Bulletin no. 212.

Saving the soil is saving all. By T. C. Richardson. Farm and Ranch. v. 53, no. 10. May 15, 1934. p. 4, 10.

Soil erosion control in Tennessee Valley. Explosives Engineer. v. 12, no. 8. August, 1934. p. 230-231. One phase of conservation work of T.V.A. is to remedy damage caused by robbing land of its natural protection against excessive erosion.

Soil salvation. By H. H. Bennett. Country Gentlemen. v. 104, no.2. February, 1934. p. 13, 57.

Tons of soil shift in recent dust storm. Farm and Ranch. v. 53, no.12. June 15, 1934. p. 12. Measurements by United States Weather Bureau show that each cubic inch of air over Capital contained 150,000 particles of dust. Normal dust count is 6,400 particles to the cubic inch.

Farm Buildings and Equipment.

By R. Rae.

Piggeries at Agricultural Research Institute for northern Ireland./ Journal of Ministry of Agriculture. v. 41, no. 3. June, 1934. p. 229-239

Portable sheep sheds. By H. F. McCelly. Farmer and Farm, Stock & Home. v. 52, no. 14. July 7, 1934. p. 12. Recommended to farmers who are looking for dual purpose shed that can be hauled by team or tractor to pasture for summer shade and returned to lot for winter shelter.

Tentative selection of farm building plans for inclusion in the plan exchange service. 1933. 53p. Mimeographed. U.S. Department of Agriculture. Bureau of Agricultural Engineering.

Farm Machinery and Equipment.

An agricultural engineer looks at mechanized farming in Russia. By E.J. Stirniman. Proceedings of the World's Grain Exhibition and Conference. v. 1. 1933. p. 336-350.

Australian farm implements. By A. T. Thom. Proceedings of the World's Grain Exhibition and Conference. v. 1, 1933. p. 415-419.

Combine investigations with spring wheat and oats. By H. K. Wilson. Proceedings of the World's Grain Exhibition and Conference. v. 1. 1933. p. 463-469.

Corn machines needed more than ever. Farm Implement News. v. 55, no.17. August 16, 1934. p. 14-16. Feed shortage can be met in part by utilization of stalks and leaves ensiled or shredded.

Deep furrow drill. By H. D. Dimmen. Proceedings of the World's Grain Exhibition and Conference. v. 1. 1933, p. 458-460.

Economical aspects and controllable factors in tillage operations. By George M. Thomson. Proceedings of the World's Grain Exhibition and Conference. v. 1. 1933. p. 378-386. Table gives comparative costs of tillage per acre.

Farm machines on air at World's Fair. Farm Implement News. v. 55, no.18. August 30, 1934. p. 20-21. Exhibit of pneumatic-tired agricultural equipment shown as feature of farmers' week at Century of Progress.

Ferrous metals: Their treatments and properties for agricultural machinery. By H. Bornstein. Agricultural Engineering. v. 15, no. 8. August, 1934. p. 276-279.

Future developments in wheat growing. By J. Newman. Proceedings of the World's Grain Exhibition and Conference. v. 1. 1933. p. 350-352. Examination of work of best machinery in use today suggests that it is not possible to carry process much farther.

History of the plow and its effect upon civilization. By H. F. Linde. Proceedings of the World's Grain Exhibition and Conference. v. 1. 1933. p. 405-410.

How the use of farm machinery creates employment. By Theo Brown. Agricultural Engineering. v. 15, no. 7. July, 1934. p. 233-243. From each recession in past we have recovered, not through abandoning machine methods, but rather by more extensive use of labor-saving equipment. Way out is not backward road to hand methods with fewer products to exchange but through wider use of labor-saving equipment which will increase efficiency of individual and result in lower cost of production and lower prices for all commodities which can be more freely exchanged, and thus create employment for more people. Discussion by R. U. Blasingame, Fred W. Hawthorn, Frank N. G. Kranick and William Aitkenhead.

How use of farm machinery creates employment. By Theo. Brown. Farm Implement News. v. 55, no. 15. July 19, 1934. p. 16-19. Text of paper presented at 1934 convention of American Society of Agricultural Engineers held at Detroit June 18, 19 and 20.

Making hay with windrow baler. By A. J. Schwantes. Hoard's Dairyman. v. 79, no. 12. June 25, 1934. p. 287.

Mechanical control of weeds in the spring wheat region. By J. G. Haney. Proceedings of the World's Grain Exhibition and Conference. v. 1, 1933. p. 449-453. Weed fighting machinery.

Plains farming requires proper implements. By E. R. Parsons. Western Farm Life. v. 36, no. 7. July 15, 1934. p. 3, 9. Plow and lister open up soil and aid in accumulating reserve moisture.

Possibilities of improvement in the mechanization of eastern Canadian Agriculture. By L. G. Heimpel. Proceedings of the World's Grain Exhibition and Conference. v. 1. 1933. p. 386-396.

Power binder. By Guy Bevan. Proceedings of the World's Grain Exhibition and Conference. v. 1. 1933. p. 460-463.

Real effects of mechanization on wheat production. By Leonard J. Fletcher. Proceedings of the World's Grain Exhibition and Conference. v. 1. 1933. p. 361-368. Increase in labour efficiency; Change in character of labour; Farm machinery upsets predictions; Effect of machinery on size of farm; Mechanization an infant in agricultural history; Effect on living standards; Leisure the goal of mechanization.

Row marker made from riding cultivator. Popular Mechanics. v. 61, no. 5. May, 1934. p. 793. Wheels, completely assembled with steering arms and cast-iron braces, are attached to ends of 4 by 8-inch plank 12 feet long. On top of plank are mounted two steering handles, which are connected with tie rod. This rod, made from 1 by 4-inch board, connects two steering arms on the wheels. Two handles are needed for steering. Four markers are made from cultivator shovels and are bolted to four wooden blocks, which are in turn bolted to plank. In order to make steering of machine independent of horses, floating tongue is provided. Two braces, fastened underneath plank, run forward at angle and meet about 4 feet from plank. Long bolt is run through both braces and tongue, one end of which extends through slot in plank.

Seeding machinery. By W. L. Braley. Proceedings of the World's Grain Exhibition and Conference. v. 1, 1933. p. 453-455.

So-called implement census. Farm Implement News. v. 55, no. 15. July 19, 1934. p. 10-11. Biennial census of agricultural implement manufacture, covering year 1933, was issued by U. S. Census Bureau. This should not be confused with annual reports of farm equipment production and sales, as these were discontinued by Bureau in 1932. This biennial census covers only tillage, seeding and harvesting machines, and machines for preparing crops for market or use. It is based on data on such machines received from only part of industry, and is, therefore, far from complete.

Some economic effect of mechanization of Canadian agriculture with particular reference to the spring wheat area. By J. T. Booth. Proceedings of the World's Grain Exhibition and Conference. v. 1. 1933. p. 352-361.

Farm Machinery and Equipment. (Cont'd)

Soy bean harvestor needs. Implement and Tractor Trade Journal. v. 49, no. 18. September 8, 1934. p. 16. Two types of soy bean harvestors are needed in the South - improved single row horse-drawn harvestor, and small combine with power takeoff.

Those good old days. Would you like to go back? No. 6: Harvesting. v. 61, no. 13. July 7, 1934. p. 3.

Those good old days. Would you like to go back? No.8: Threshing. Wisconsin Agriculturist and Farmer. v. 61, no. 15. August 4, 1934. p. 5.

Thresher and other mechanical injury to seed beans of the lima type. By Roy Bainer and H. A. Borthwick. 1934. 30p. California. Agricultural Experiment Station. Bulletin no. 580.

U. S. Engineers patent pick-up for row harvesters. Farm Implement News. v. 55, no. 16. August 2, 1934. p. 11. Mechanical attachment for corn harvesting machines that picks up broken and lodged stalks so that farmer can do cleaner job in harvesting row crops such as corn and sorghums, has been developed by U. S. Department of Agriculture engineers. This lifting attachment is designed for use on mechanical corn pickers and corn binders and other row harvesters. Lifting device consists of long slender metal fingers attached to links of endless chain, driven by sprocket wheels mounted on divider board of corn binder or other row crop harvesting machine. Fingers are flexible. Outer ends of fingers sweep surface of ground and pick up fallen or down stalks, carry them inward toward crop row being harvested, raise them from ground and bring them within reach of gathering chains of machine so that they are harvested along with standing crop.

Fences.

Essentials of good farm fence installation. By L. W. Neubauer. Agricultural Engineering. v. 15, no. 8. August, 1934. p. 285.

Good fences more needed than ever. American Lumberman. no. 3028. August 18, 1934. p. 24.

Fertilizers.

Food and fertilizer trends of significance to agricultural engineer. By G. B. Gunlogson. American Fertilizer. v. 81, no. 2. July 28, 1934. p. 10-11, 22-24. Summary: 1. Agriculture thus far has guided food production mainly by quantity and by more obvious qualities, essentially physical. 2. Increasing deficiency of certain rare minerals in foods appears to be affecting the health, and even physical characteristics of people. 3. Effect of these deficiencies is aggravated by living conditions in industrialized society. 4. Mineralization of foods will involve both soil selection and special fertilizers. 5. Phases of agricultural engineering specifically involved are machinery, land reclamation, and land utilization. 6. Organization for production, processing, and marketing of mineralized foods will put premium on engineered farm management.

Progress in fertilizer technology. By C. H. Kunsman. American Fertilizer. v. 81, no. 2. July 28, 1934. p. 5-7, 26.

Flax.

Flax-fiber production. By B. B. Robinson. 1934. 26p. U. S. Department of Agriculture. Farmers' Bulletin no. 1728.

Going in for flax. Arizona Producer. v. 13, no. 11. August 15, 1934. p. 1, 14. Salt River Valley farmers plowing fields for new crop.

Flood Control.

Computation of floodflows by slope-area method. By A. H. Davison. Engineering News-Record. v. 113, no. 8. August 23, 1934. p. 244-246. In determining river discharge from high-water marks, roughness coefficient varies, corresponding to value of wet perimeter.

Shovels and trucks rush earthfill on Winooski flood-control dams. Engineering News-Record. v. 113, no. 9. August 30, 1934. p. 266-267. Construction operations in Vermont by CCC completely mechanized following winter season of hand labor. Concrete diversion conduits built during cold weather.

Floors.

Floors without nails. American Builder and Building Age. v. 56, no. 3. March, 1934. p. 33. New floor system is mechanical method of laying ordinary strip flooring without use of nails, wood sleepers or mastic. Metal channel 1-1/8 inches by 5/16 inches high with overlapping top edges is used instead of wood sleepers. This channel is laid over sub-floor 12 inches or 16 inches on centers, in same general manner as old fashioned wood sleepers. Standard wood flooring is laid same way that nailed floor would be laid, but instead of nails cleverly designed metal clip is used. Carpenter slips these clips into channels immediately ahead of last board and drives them into place by driving up next board. This forces clips to bite into and over tongue of one board, and imbed themselves in groove of other, thus securely locking both boards together and to channel.

Wire floors. By L. E. Weaver. American Agriculturist. v. 131, no. 10. May 12, 1934. p. 21, 23. For poultry houses.

Flow of Water and Gases.

Alignment chart for solving problems in orifice flow. By Allen S. Smith. Heating, Piping and Air Conditioning. v. 6, no. 9. September, 1934. p. 392-393.

Gibson method of measuring flow of water. Canadian Engineer. v. 66, no. 23. June 5, 1934. p. 8. Abstract of paper discussing degree of accuracy of Gibson method.

How water flows in a pipe line. By Charles M. Allen. Canadian Engineer. v. 67, no. 1. July 3, 1934. p. 6. Result of investigations conducted at Alden hydraulic laboratory.

Velocity-head correction for hydraulic flow. By Morrough P. O'Brien and Joe W. Johnson. Engineering News-Record. v. 113, no. 7. August 16, 1934. p. 214-216. Use of mean velocity factor in computing velocity head should be corrected to kinetic-energy coefficient in many open-channel problems. Graphical method outlined.

Fruit Washers.

Fruit washers and spray residue removal. By B. A. Jennings. Agricultural Engineering. v. 15, no. 7. July, 1934. p. 244-245, 248. Tests reported are part of some 400 tests at Cornell University by W. T. Pentzer, of U.S. Department of Agriculture.

Removal of lead and arsenic spray residues from New York apples. By W.T. Pentzer. 1934. 37p. Cornell University. Agricultural Experiment Station. Bulletin no. 604.

Fuels.

Alcohol-gasoline engine fuels. By Harry Miller. 1934. 29p. Idaho. Agricultural Experiment Station. Bulletin no. 204.

Burning heavy fuels in the farm tractor. By E. A. Hardy. Proceedings of the World's Grain Exhibition and Conference. v. 1. 1933. p. 427-432.

Heating.

Gas for heating. By Thomson King. Domestic Engineering. v. 144, no.2. August, 1934. p. 91-92, 117-119. Table A: Saving due to varying thickness of insulation added to wall or roof having conductance of .27 insulation. Table B: Conductances of various thicknesses of insulation.

Investigation of warm-air furnaces and heating systems. By Alonzo P. Kratz and Seichi Konzo. Part VI. 1934. 128p. Illinois. Engineering Experiment Station. Bulletin no. 266.

Mechanical analysis of oilheating equipment: Includes data about wiring and use of controls. Fuel Oil Journal. v. 13, no. 3. September, 1934. p. 52-59.

Mechanical features of modern stokers for automatic heating. Heating and Ventilating. v. 31, no. 8. August, 1934. p. 17, 23, 74. Compact and convenient tables covering representative group of coal-burners, arranged for ready reference.

More requirements for gas appliances are approved as American standards. By R. M. Conner. Industrial Standardization. v. 5, no. 8. August, 1934. p. 162-166. Safety and economy added to gas-burning equipment for homes and plants as five new codes are approved.

Hitches.

Hitches used in grain growing sections. By H. E. Murdock. Proceedings of the World's Grain Exhibition and Conference. v. 1. 1933. 433-442.

Horses.

Economic aspects of the horse industry in Western Canada. By H. B. Sommerfeld. Proceedings of the World's Grain Exhibition and Conference. v. 1, 1933. p. 396-404.

Horse is coming back. Idaho Farmer. v. 52, no. 10. May 17, 1934. p. 9. Shortage of animals for farm use raises big problem.

Houses.

Architect can do small houses at a profit. By Alexander T. Saxe. Pencil Points. v. 15, no. 5. May, 1934. p. 233-234.

Arkansas farm housing conditions and needs. By Deane G. Carter. 1934. 35p. Arkansas. Agricultural Experiment Station. Bulletin no. 305.

Further plans for our Kansas homes. By Ellen L. Pennell, and H. E. Wichers. Successful Farming. v. 32, no. 9. September, 1934. p. 12-13. Plans for yard, garden and drive.

House that forecasts home of tomorrow. By Tyler Stewart Rogers. American Architect. v. 144, no. 2622. March, 1934. p. 23-31.

Looking ahead to better farm houses. By Wallace Ashby. Agricultural Engineering. v. 15, no. 8. August, 1934. p. 280-282. Survey provided information on repairs and equipment needs.

Startling facts revealed by farm home survey. By Frank A. Briggs. Farm and Ranch. v. 53, no. 12. June 15, 1934. Survey discloses fact that only small number of farms are equipped with conveniences considered necessities in towns and cities, and that very large percentage of homes are in need of repairs or enlargement.

We need homes! Brick & Clay Record. v. 85, no. 2. August, 1934. p. 45-47. Report and interpretation of the real property inventory conducted by the Bureau of Foreign and Domestic Commerce. Table no. 1.- Results of national survey on needs of adequate housing. Table no. 2.- Total of residential structures and number using principal specified construction materials distributed by geographical division.

Houses, Remodeling.

Brick veneer turns old homes into new. Popular Mechanics. v. 61, no. 5. May, 1934. p. 717. Each panel consists of twelve brick-veneer slabs permanently mounted on insulating board and spaced as in standard brick construction. Panel is nailed through joints to outside of building. Regular brick mortar is used to fill joints between brick slabs. Around windows, doors, cornices and the like, veneer panels may be cut into pieces resembling single brick to facilitate work. Board on which brick slabs are mounted insulates house, resulting in lower fuel consumption by heating plant.

House modernization drive started under Federal stimulation. Engineering News-Record. v. 113, no. 7. August 16, 1934. p. 220.

Kansas farm home launches new remodeling program. Successful Farming. v. 32, no. 8. August, 1934. p. 12-13, 26. Sponsored by Successful Farming.

Start of drive for home modernization set for August 15. Engineering News-Record. v. 113, no. 6. August 6, 1934. p. 188.

Irrigation.

Brick lining used for irrigation canal in Texas. By W. I. Gilson. Engineering News-Record. v. 113, no. 8. August 23, 1934. p. 246-247. Lining of experimental 500-foot section followed by more extended use indicates advantages of low cost, inexpensive equipment, minimum of skilled labor required and satisfactory hydraulic properties.

Development of porous hose method of irrigation in Michigan. By O.E. Robey. Agricultural Engineering. v. 15, no. 8. August, 1934. p. 282-283.

Historia general del sistema nacional de riego. Irrigacion en Mexico v. 8, no. 6. June, 1934. p. 359-399. General history of the national irrigation system.

Irrigates without ditches. Oregon Farmer. v. 57, no. 15. July 26, 1934. p. 6. Movable surface pipe proves serviceability.

Irrigation in Bulgaria. Monthly bulletin of Agricultural Science and Practice. v. 25, no. 5. May, 1934. p. 203-204. Drought annually does great deal of crop damage, and for this reason country's agricultural progress depends to large extent upon development of irrigation stream correction, and swamp drainage. Under this aspect Bulgarian irrigation syndicates have rendered great service to country in carrying out irrigation, stream correction, and electrification projects with help and under supervision of State. There are three types of irrigation syndicates in Bulgaria, namely:- (a) Irrigation syndicates, properly so-called. (b) Stream correction and swamp drainage syndicates. (c) Electrification syndicates.

New water gate. Arizona Producer. v. 13, no. 11. August 15, 1934. p. 11. Disc of concrete, perfectly flat on inner side, and with metallic rim to prevent breakage. To this is attached strap-iron handle. Across handle, just above disc, is bolted another piece of iron, with ends bent backward. These ends hang over collar on tile and disc completely closes opening, forming union that is almost completely water-tight. Harder current pushes disc against tile, more water-tight it becomes.

Proper irrigation methods save water. By M. H. Kimball. California Cultivator. v. 81, no. 13. June 23, 1934. p. 328. Irrigation is practice of artificially replacing supply of water in soil which is withdrawn by roots of plants in excess of rainfall.

Some improvements in auto-irrigator apparatus. By L. A. Richards and H.L. Blood. Journal of Agricultural Research. v. 49, no. 2. July 15, 1934. p. 115-121. Summary: Advantages and disadvantages of constant-weight and constant-capillary-tension methods for controlling soil moisture are discussed, and directions for construction and operation of one-piece double-walled auto-irrigator pots are given. Types of soil moisture control that may be expected from porous auto-irrigator units are briefly analyzed.

Land.

Economic study of land utilization in Tompkins County, New York. By A.B. Lewis. 1933. 58p. Cornell University. Agricultural Experiment Station. Bulletin no. 590.

Land. (Cont'd)

Just what is this land survey, anyway? By L. C. Wheeting. Washington Farmer. v. 69, no. 17. August 23, 1934. p. 5. Land classification plan for Washington proposes to do following things: Make accurate map of roads, make soil survey, conduct study of climate surroundings, make map of lay of land, show kind of growth now on land, obtain production figures on different kinds of soil, study matters relating to tax assessments, delinquency, etc.; study kind and intent of ownership of land, study population density and trends, determine market conditions, investigate school and road systems, consider other matters of special or general interest, put all of conditions together and determine best use for land, from study of past behavior and inherent soil qualities, classify land, place information in hands of people, help them make use of it for better state.

Land planning in Montana. By Clyde McKee. Montana Farmer. v. 21, no.24. August 15, 1934. p. 5. Soil surveys point way to sound land utilization. Following grades of grazing land have been worked out: Grazing land: First grade: 17 acres per cow unit (brown to very dark brown soils) Second grade: 18 to 26 acres per cow unit (dark brown soils) Third grade: 27 to 38 acres per cow unit (brown soils) Fourth grade: 39 to 57 acres per cow unit (light brown soils) Fifth grade: 58 acres and over per cow unit (bad lands, etc.) Nonirrigated farm lands: First grade: 22 bushels per acre or more. Second grade: 16 to 21 bushels per acre. Third grade: 12 to 15 bushels per acre. Fourth grade: 8 to 11 bushels per acre.

Miscellaneous.

Automobile facts and figures. 1934 edition. National Automobile Chamber of Commerce, 366 Madison Avenue, New York. 96p. Figures for calendar year 1933.

Inexpensive fireless cooker. Montana Farmer. v. 21, no. 25. August 1, 1934. p. 10.

Long-term debt study undertaken by Bureau of Foreign and Domestic Commerce. Domestic Commerce. v. 14, no. 7. September 10, 1934. p. 71. Study of internal debts in United States. Study as proposed will include such topics as personal, corporate, public utility, railroad, insurance, rural, banking, and Government indebtedness.

Proceedings of the World's Grain Exhibition and Conference, Regina, Canada. July 24-August 5, 1933. v. 1. 1934. 479p. Includes papers read on the economics of cereal production and on mechanization.

Shall we work less and pay more, or truly cooperate in recovery. By F.H. Clausen. Implement Record. v. 31, no. 9. September, 1934. p. 7-8.

Models.

Similitude requirements in model design. By Roy W. Carlson. Engineering News-Record. v. 113, no. 8. August 23, 1934. p. 235-238. Meeting requirements of two simple but exacting rules comprise basis of model design in fields of both structures and hydraulics.

Motors.

Elementary considerations in selection of electric motors. By C. C. Herman. Southern Power Journal. v. 52, no. 9. Sept. 1934. p. 48-50.

Painting.

Ready to paint? Here's how. By A. Carnes. Progressive Farmer. v. 49, no. 8. August, 1934. p. 10. Home-mixed paints. Tinting or coloring paint.

Potatoes.

Control of diseases and insect pests of potatoes on Long Island. By M. F. Barrus and C. R. Crosby. 1934. 26p. Cornell University. Extension Service. Extension Bulletin no. 288.

Poultry Houses and Equipment.

Straw loft poultry house. Montana Farmer. v. 21, no. 23. August 1, 1934. p. 10.

Power.

Economics of power used in large and small units. By E. A. Starch. Proceedings of the World's Grain Exhibition and Conference. v. 1. 1933. p. 375-378. Major broad principles are: 1. Efficient combination of size of farm and size of equipment unit. 2. Adjusting farm organization to obtain maximum use of power and equipment. 3. Securing utmost efficiency from equipment itself.

Power for two cotton mills from one plant. By Guy Mankin. Power. v.78, no. 9. September, 1934. p. 483-486. Clinton Cotton Mills' new power plant operates on steam at 400 pounds pressure generated in boiler of radical design. Plant also supplies power to Lydia cotton mill three miles away.

Power on the farm. By C. G. Pearse. Proceedings of the World's Grain Exhibition and Conference. v. 1. 1933. p. 368-375. Sources of farm power; What power will be used; Cost of production; How to reduce farm power costs; Which power is cheaper; Farming during depressions.

Pumps and Pumping.

Pumping plants supplement ditch irrigation. Western Farm Life. v. 36, no. 7. July 15, 1934. p. 3, 15. Becoming increasingly important in many sections where irrigation farming is practiced.

Rain and Rainfall.

Importance of rainfall records. Letter from Robert L. Lowry, Jr. Engineering News-Record. v. 113, no. 10. September 6, 1934. p.309.

Rain and Rainfall. (Cont'd.)

Problems in using government data on rainfall and runoff. By C. H. Eiffert. Engineering News-Record. v. 13, no. 7. August 16, 1934. p. 200-201. Principal difficulty appears to be lack of sufficient cooperation between U. S. Weather Bureau, Geological Survey and army engineers to make possible combining of published data to best advantage. There are also obstacles in use of data of individual departments. All observations could be made at same hour, or at least all observations in same state or district could be made simultaneously without additional expense. Data would then be much more useful for engineering purposes and should be just as valuable for agricultural and other uses. Frequent change in location of stations or abandonment of some stations and starting of others is considerable hindrance in some studies, especially where long-time records are needed. Methods of rating are different and records are published independently and in different form, with little thought of combining data that are closely related. If it is impossible to have related work carried on by single department, definite improvement could be effected by better cooperation without curtailing work of one agency or increasing that of another.

Reclamation.

Lake Okeechobee project. By George Kumpe. Military Engineer. v. 26, no. 149. September-October, 1934. p. 368-372.

Lake Okeechobee storm tides confined by 66-mile levee. By S. T. Henry. Engineering News-Record. v. 113, no. 7. August 16, 1934. p. 195-200. Combination navigation and flood-control project being carried out by the Federal Government to prevent repetition of disastrous overflows of 1926 and 1928. Calls for over 43,000,000 cubic yards of rock and marl levee and auxiliary structures to control lake levels.

Refrigeration.

Determination of pressure loss in refrigeration piping. By N. C. Ebaugh. Southern Power Journal. v. 52, no. 9. September, 1934. p. 35-37. Use of single formula for steam, water, brine, ammonia, gas.

Iceless refrigerator. Farmer and Farm, Stock and Home. v. 52, no. 14. July 7, 1934. p. 16. Diagram.

Improvements in farm milk cooling shown at World's Fair. Electric Refrigeration News. v. 12, no. 16. August 15, 1934. p. 6.

Refrigeration-heat-pump system. By R. Wilkinson. Cold Storage and Produce Review. v. 37, no. 434. May 17, 1934. p. 117-118, 124. Planum and direct expansion methods.

Research.

Research and adjustment march together. By Henry A. Wallace. Science. v. 80. no. 2066. August 3, 1934. p. 105-106

Science gets one-third cent of each federal dollar. Popular Mechanics. v. 61, no. 5. May, 1934. p. 683. Total cost of running government this year will amount to nearly $10,000,000,000, with science and research receiving approximately $29,500,000. Ten-billion dollar figure includes emergency expenditures under administration's recovery program. If these expenditures are left out of picture, amount spent on scientific research is less than one cent in each Federal dollar.

Rivers.

Pit river investigation. Sacramento, 1933. 152p. California Division of Water resources. Bulletin no. 41.

Progress in straightening the Mississippi by cutoffs. Engineering News-Record. v. 113, no. 9. p. 268-270. Eight cutoffs are now taking part of flow of river. Length of river shortened by 70 miles. Pilot channels are dug with dredges and dragline excavators. River flow used to enlarge pilot channels.

Roofs.

Roof pitch indicator shows measurement of any angle. Popular Mechanics. v. 61, no. 5. May, 1934. p. 644. Finding of roof pitch of any building is made simple matter by using pitch indicator, arms of which are adjusted so they can be lined up with roof when user stands facing gable. Rise per foot run is then read on dial.

Specification for roofing, siding and sheet metal work; dampproofing and membrane waterproofing. Washington. U.S. Government Printing Office, 1928. 35p. U.S. Navy Department. Bureau of Yards and Docks.

Sanitation.

Sanitation in relation to production of farm commodities. Agricultural Engineering. v. 15, no. 8. August, 1934. p. 284-285. 1933-34 report of A.S.A.E. subcommittee of Joint Committee on Rural Sanitation sponsored by American Society of Agricultural Engineers, American Public Health Association, and Conference of State Sanitary Engineers. The A.S.A.E. subcommittee consists of R.W. Trullinger (chairman), E. W. Lehmann, and H. B. Walker.

Screens and Screening.

Good screens are necessity. By Ernest W. Steel. Farm and Ranch. v.53, no. 11. June 1, 1934. p. 24.

Silos.

Dig and save. By Carlyle Hodgkin. Nebraska Farmer. v. 76, no. 17. August 18, 1934. p. 6. Trench Silos are best answer to Nebraska's roughage problem. Gives cross section.

How to make trench silo. By T. Werden Johnson. Farmer and Farm, Stock and Home. v. 52, no. 16. August 4, 1934. p. 4. No cash outlay necessary. Cross-section view shows dimensions of trench silo and how it is built.

Make the silo catch-all. Farmer and Farm, Sock and Home. v. 52, no.16. August 4, 1934. p. 4. Best way to save all roughage.

My experience with a trench silo. By George Risdal. Montana Farmer. v. 21, no. 24. August 15, 1934. p. 6.

Silos. (Cont'd)

Temporary silos. By C. H. Jefferson and A. J. Bell. Michigan Farmer. v. 133, no. 1. July 7, 1934. p. 5, 14. Advantages of crib silo are listed: 1. It provides feed at fraction of initial cost of other types of silos. 2. It is easily erected at time of filling where feed is to be distributed. 3. Provides renter with satisfactory silo that can be moved from farm with very little trouble.

Temporary silos for Michigan. By C. H. Jefferson and A. J. Bell. 1934. 14p. Michigan State College of Agriculture and Applied Science. Extension Division. Extension Bulletin no. 141.

Trench silos. Arizona Producer. v. 13, no. 11. August 15, 1934. p. 10. Especially valuable this year of short feed. Hints on digging, and care.

Soils.

Principal soils of New Jersey and their utilization for agriculture. By Linwood L. Lee. 1934. 16p. New Jersey Agricultural Experiment Station Bulletin no. 569.

Soils and crops of the Imperial Valley. By Stanley W. Cosby and L. Gordon Goar. 1934. 108p. California. Agricultural Experiment Station Circular, no. 334.

Spraying and Dusting.

Machinery for dusting cotton. By R. C. Gaines and D. A. Isler. 1934. 14p. U.S. Department of Agriculture. Farmers' Bulletin no. 1729.

Storage Houses.

Common, or air-cooled, apple storage and its management. By D. B. Carrick and A. M. Goodman. 1934. 29p. Cornell University. Extension Service. Extension Bulletin no. 286.

Eastern apple growers construct electrically cooled storage houses. Electric Refrigeration News. v. 12, no. 16. p. 6. Appalachian Orchards at Paw Paw, W. Va., last summer equipped first floor of its storage house with unit air cooler connected to Frick 5 x 5 combined ammonia machine. This storage house has no cork insulation on walls, which are built of 12-inch terra cotta tile. Eight inches of ground cork is used on ceiling and 18 inches of cinders under concrete floow. Standard refrigerator doors are installed. Each floor holds 10,000 barrels and cold storage space measures 72 x 84 x 14 feet. Niagara blower unit is arranged to handle air content of room once every nine minutes. Thermostat stops compressor when temperature reaches 32 degrees F. and starts it again at 36 degrees F., intermittent action allows for defrosting coils. In checking up against total operating costs, power depreciation, taxes, interest on investment, and all charges, we find it costs about 10.4 cents a bushel per season to store total of 30,000 bushels of fruit including 15,000 bushels of peaches, which are stored for period of two months and 15,000 bushels of apples for season of about six months.

Storage Houses. (Cont'd)

Storage cellar. Farmer and Farm, Stock and Home. v. 52, no. 14. July 7, 1934. p. 21. Best location is hillside with moist clay soil, as this will give evenest temperature and moisture conditions throughout year. Cellar 20 feet long, 10 feet wide, and 7½ feet high is large enough for average family, but storing much produce for market will require more room. Walls may be of concrete blocks 8 inches thick, but wall of field stones laid up in cement mortar is also satisfactory. Concrete footing 16 inches wide and 8 inches deep should support each wall. Roof should be concrete slab 6 inches thick at sides and 8 inches at middle and supported on old auto or truck frames built crosswise into side walls. Roof slab should be reinforced both ways against cracking with one-half inch reinforcing rods or with strips of heavy woven wire fencing. It is well to give top surface good coat of hot asphalt or of heavy roofing cement before covering with earth, to prevent any chance of water seeping through from fine cracks. An 18-inch opening should be left in roof, and ventilator built in, with adjustable cover to regulate change of air.

Terracing.

Tallapoosa solves terracing problem. By Alexander Nunn and P. O. Davis. Progressive Farmer. v. 49, no. 8. August, 1934. p. 6-7.

Terrace; then plant legumes. By M. J. Funchess. Progressive Farmer. v. 49, no. 8. August 1, 1934. p. 5, 10. Urged to consider very carefully conservation of land through proper terracing and use of soil building crops as means of producing large yields of our common farm crops at low cost. Regardless of whether Federal government continues to aid farmers through present methods, it will always pay individual farmers to do everything they possibly can to produce their crops as cheaply as possible. Saving soil and building it up through use of cover crops are their most important jobs during fall and winter.

Tires.

Development of pneumatic-tired tractors for agriculture. By George H. Nystrom. Proceedings of the World's Grain Exhibition and Conference. v. 1, 1933. p. 424-427.

Tractor treads are applied to pneumatic tires. Popular Mechanics. v. 61, no. 5. May, 1934. p. 693. They extend across both dual tires, are equally spaced about circumference and are held by chain against rubber firmly enough to prevent slipping or chafing. Inside of plates is smooth and curved to fit contour of tires and it is claimed tires are not injured in any way by treads.

Why of the air-tired tractor. By Frank W. Squire. Farm Implement News. v. 55, no. 17. August 16, 1934. p. 18-19. Convincing reasons given by Indiana dealer and one of his customers who know from experience.

Tractors.

Potato growing with tractor power. By A. W. Clyde and R. U. Blasingame. 1934. 18p. Pennsylvania Agricultural Experiment Station. Bulletin no. 306.

Tractors. (Cont'd)

Tractor power in relation to agriculture. By G. Douglas Jones. Proceedings of the World's Grain Exhibition and Conference. v. 1. 1933. p. 419-423.

Ventilation.

Ventilation of pig houses. Journal of the Ministry of Agriculture. v. 41, no. 3. June, 1934. p. 221-222.

Ventilator fan placed over kitchen light. Popular Mechanics. v. 61, no.5. May, 1934. p. 656.

Walls.

Details for better wall panel joints. American Builder and Building Age. v. 56, no. 9. September, 1934. p. 50-51. New metal trim used with panel materials solves important joint problems.

Durability and water-tightness of walls of unit masonry. By L. A. Palmer. Canadian Engineer. v. 67, no. 2. July 10, 1934. p. 4-5. Conclusions based on ten years of intensive study of mortar and masonry problems at National Bureau of Standards.

Water Analyses.

Quality of the waters of southeastern Nevada, drainage basins and water resources. By George Hardman and Meridith R. Miller. 1934. 62p. Nevada. Agricultural Experiment Station. Bulletin no. 136.

Seepage of groundwater and its relation to alkali accumulation. By D.S. Jennings, Willard Gardner and O.W. Israelsen. 1934. 11p. Utah. Agricultural Experiment Station. Circular no. 106.

Water Heating.

Hot water from reversed refrigeration. By B. J. Honkes. Electrical World. v. 104, no. 5. August 4, 1934. p. 140-142. Water heaters of greater than 100 per cent efficiency can be built on reversed refrigeration. Such efficiencies are calculated by dividing heat input to water by heat equivalent of electrical power input to condensing unit. Output of condensing unit, i.e., input to water, is sum of heat input to condensing unit plus refrigeration load.

Water Supply.

Ask more water storage. By Carl E. Hayden. Idaho Farmer. v. 53, no. 13. June 28, 1934. p. 16. Proposed enlargement of American Falls reservoir to 3,000,000 acre feet capacity.

Industrial utility of public water supplies in the United States, 1932. By W. D. Collins, W. L. Lamar and E. W.Lohr. 1934. 135p. U.S. Geological Survey. Water-Supply Paper no. 658.

Plain figures show why Salt River project must have all water of Verde. Arizona Producer. v. 13, no. 11. August 15, 1934. p. 12.

Storage on Verde for Salt River project is vital to its success. Arizona Producer. v. 13, no. 10. August,1, 1934. p. 7.

Water shortage stresses conservation value. California Cultivator. v. 81, no. 14. July 7, 1934. p. 347, 358. Those contemplating planting of annual summer crops in areas where there is likely to be water shortage should consider planting only as much acreage as they feel certain their water supply will properly irrigate, rather than in trying to make diminishing water supply water their full acreage. Trying to make an inadequate water supply cover too great acreage may result in total loss, or at best very light yield, whereas reducing acreage planted to that which water supply will properly irrigate will insure good crop on that planted, and result in saving of both seed and labor.

Water users tell Verde objections to Mead. Arizona Producer. v. 13, no.9. July 15, 1934. p. 6, 8. Summary of facts upon which Salt River Valley Water User's Association objects to development of Paradise-Verde project.

Water System.

Running water: It's the farm family's step-saver. By F.L. Touton. Southern Agriculturist. v. 64, no. 8. August, 1934. p. 4.

Saving on pipe. Arizona Producer. v. 13, no. 11. August, 1934. p.16. Boiler tubing, properly reconditioned by new methods, cuts cost of farm water systems.

What is it worth to have water under pressure in the home? By E. W. Lehmann. Electricity on the Farm. v. 7, no. 9. September, 1934. p. 9-11, 18.

Wheels.

Flexible wheels smooth bumps for truck. Popular Mechanics. v. 61, no.5. May, 1934. p. 701. Eight-wheeled truck recently produced in England travels roughest roads without jars and bumps, due to independent suspension of wheels. Each wheel bears its own share of load regardless of roughness of road surface because each is flexible, enabling it to sink into rut or rise over bump without affecting others. Tractor is intended to haul two trailers, each with eight wheels of similar design, twenty-four wheel truck-train being drawn by 130 horsepower oil engine.

Technical analysis of agricultural implement type of spoked wheels. By Oliver B. Zimmerman. Agricultural Engineering. v. 15, no. 8. August, 1934. p. 287-301. This technical development is result of desire to supply engineers with logical method of approach to wheel design. It is also intended to enable designer to determine quickly and to visualize what stress values and variations are in wheel form of structure when wheel is stationary, when it is operating under normal loads. It must also foretell where to emphasize strength to anticipate emergency stresses.

Windmills.

Wind electric plants. By R. P. Frey. Proceedings of the World's Grain Exhibition and Conference. v.1. 1933. p. 469-474.